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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,776	07/08/2005	Toshihiko Ohashi	0216-0516PUS1	1474

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EXAMINER

CHANG, VICTOR S

ART UNIT	PAPER NUMBER
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1783

NOTIFICATION DATE	DELIVERY MODE
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07/30/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/541,776	Applicant(s) OHASHI ET AL.	
	Examiner VICTOR S. CHANG	Art Unit 1783	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5 and 7-16 is/are pending in the application.
- 4a) Of the above claim(s) 7-13 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,14 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Introduction

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's remarks filed on 6/16/2010 have been entered. Claims 1, 3, 5, 14 and 15 are active. Claims have not been amended.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. The grounds of rejection not maintained are withdrawn.

Rejections Based on Prior Art

4. Claims 1, 3, 5, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lange et al. (US 4816333) in view of Takahashi et al. (US 6251523).

Lange's invention relates to an antireflective polymeric or glass substrate having a porous silica coating thereon. See col. 2, lines 36-42; col. 3, lines 7-10; col. 4, lines 11-55; Examples 1 and 13. The porous coating comprises a continuous gelled network of voids between the silica particles. The gelled network is formed from a colloidal solution of silica particles. When dried, the silica coating has an open porosity of about 25 to 70 percent, and has a refractive index between 1.20-1.30. The average primary particle size of the colloidal silica particles is less than

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200 Å (20 nm), preferably less than about 70 Å to achieve good adhesion (abrasion resistant) of the coating to the substrate and antireflection properties. Fig. 2 illustrates the antireflective property of a silica coated polyethylene terephthalate (PET) film.

For claims 1 and 3, Lange lacks a teaching of making an antireflection coating from a colloidal solution comprising chain silica fine particles (moniliform silica strings). However, Takahashi's invention relates to a coating on glass windows having small reflectivity (antireflection) at high incident angle for an improved visibility. The coating is formed from a colloidal solution comprising chain silica fine particles and 5 to 30 wt% silica (colloidal forming hydrolysable silane) based on the weight of said chain silica fine particles. See col. 1, ll. 55-61. Space (void or pore) is formed between the mutually adjacent chain silica fine particles in the coating. The coating has a refractive index of 1.25 to 1.40. Dents and projections caused by the chain silica fine particles are formed on the surface of the coating. See col. 1, ll. 66 through col. 2, ll. 8. A large number of gaps of 5 to 20 nm width are formed between the adjacent chain fine particles in the coating. These large numbers of gaps have exceedingly large gross volume in comparison with the gaps made on supposition of using the same amount of spherical silica fine particles in place of the chain silica fine particles. The low refractive index of the coating approaches the theoretical value (1.225) required for obtaining zero reflectance for glass substrate. See col. 2, ll. 20-37. The void volume (porosity) of the coating is between 50 to 80%. See col. 2, ll. 48. The size of the chain silica fine (primary) particles is preferably of an average diameter of 10 to 20 nm and an average length of 60 to 200 nm. The silica film is formed by drying at a temperature in the range of room temperature to 200°C for 1 minute to 2 hours. According to necessity, heat treatment may be given at a temperature between 400°C and 750°C

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for 5 seconds to 5 hours, by which the silica film on the surface of the glass substrate becomes strong. See col. 7, ll. 28-34. It would have been obvious to one of ordinary skill in the art to modify Lange's coating with Takahashi's chain silica fine particles, motivated by the desire to obtain a coating with an improved low reflectance approaching zero, i.e., an improved antireflection. Regarding the hardness, minimum reflectance and the equation describing the structural relationship between various structural elements of the coating, since the collective teachings of prior art render the general structure, composition, and process of making of the claimed invention obvious, these properties are deemed to be obvious routine optimization to one skilled in the art, motivated by the desire to obtain required properties for the same end use as the claimed invention.

For claim 5, Lange teaches the same PET substrate for the same use as the instant invention. The hardness of the substrate is deemed to be inherent to the PET film.

For claims 14 and 15, since they are of the same scope as claims 1 and 3, they are also rejected for the same reasons as set forth above. Regarding the product-by-process limitations, since they have not been shown on the record to produce a patentably distinct article, the formed articles are rendered prima facie obvious, and the process limitations at the present time have not been given patentable weight.

Response to Argument

5. Applicants argue at Remarks page 4:

“Applicants consider that the USPTO's reasoning is based on a hindsight analysis. It should be reminded that **Takahashi et al. US'523** has no teaching or suggestion that "the required properties for the same end used as the claimed invention" can be obtained by “the structural relationships

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expressed in formula (1)"; therefore, it cannot be said that "the structural relationships expressed in formula (1)" are "obvious routine optimization" since **Takahashi et al. US'523** lacks clear pointer to such a structural relationship."

However, since the collective teachings are directed to the same end use as the claimed invention, it is inconceivable that the same end use would not require the same optimized properties. Since the formula merely describe the structural relationships of an optimized structure for the same end use, it is deemed to be obviously provided by practicing optimization of the collective teachings of prior art. While applicants may be the first to describe the resultant structural relationships, there is no evidence whatsoever that the same required optimized antireflection properties can be obtained by distinctly different structures. Applicants are reminded that the basis of rejection is 103, not 102, over collective teachings of prior art. Applicants' argument directed to Takahashi individually is misplaced. Finally, regarding hindsight analysis, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. Since the Office action takes into account only knowledge which was within the level of ordinary skill at the time the invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper.

Applicants argue at pages 4-5:

"in all of the Examples of the present application, the laminated structures of the present invention are produced under conditions wherein the hydrolysis and dehydration-condensation of silane prior to mixing with monoliform silica strings is avoided in the preparation of a coating composition for forming the porous silica layer (detailed explanation on this point is made later referring to Comparative Examples 2 and 3) and the heating of the coating composition is suppressed as much as possible (120 °C for 2 minutes in all of the Examples of the present application).

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On the other hand, in all of the Examples of **Takahashi et al. US'523**, laminated structures are produced under conditions where, in addition to the very high temperature heating of the coating composition (100 °C for 30 minutes, 250 °C for 30 minutes and, then, 500 °C for 1 hour) as pointed out in the Applicants' previous responses, the hydrolysis and dehydration-condensation of silane is carried out prior to mixing with moniliform silica strings, thereby resulting in structures totally different from that of the present invention.

...

Therefore, **Takahashi et al. US'523** does not enable a person of ordinary skill in the art to carry out the invention of the present application and, hence, cannot be said to satisfy the enablement required of a prior art reference in MPEP 2121."

However, nowhere has Office proposed to use the same manufacturing process of Takahashi.

The grounds of rejection states "It would have been obvious to one of ordinary skill in the art to modify Lange's coating with Takahashi's chain silica fine particles, motivated by the desire to obtain a coating with an improved low reflectance approaching zero, i.e., an improved antireflection." To further clarify, Office merely proposes to substitute Lange's silica particles with the chain silica fine particles, so as to obtain the beneficial effects of the moniliform silica strings taught by Takahashi. Again, applicants' argument is misplaced.

For the same reasons set forth above, applicants' argument at pages 6-9 have been considered, but are unpersuasive.

Conclusion

6. This is a continuation of applicant's earlier Application No. 10/541776. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first

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action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VICTOR S. CHANG whose telephone number is (571)272-1474. The examiner can normally be reached on 6:00 am - 4:00 pm, Tuesday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Victor S Chang/
Primary Examiner, Art Unit 1794